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Term: "peptidoglycan synthesis"

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DB Name	Query	Hit Count	Set Name
USPT,JPAB,EPAB,DWPI,TDBD	"peptidoglycan synthesis"	29	L27
USPT,JPAB,EPAB,DWPI,TDBD	peptidoglycan synthesis	29	L26
USPT,JPAB,EPAB,DWPI,TDBD	peptidoglycan adj5 (assay? or radiolabel?)	1	L25
TDBD,DWPI,EPAB,JPAB,USPT	(PEPTIDOGLYCAN)!	781	L24
USPT,JPAB,EPAB,DWPI,TDBD	l21 and peptidoglycan	1	L23
USPT,JPAB,EPAB,DWPI,TDBD	l19 and peptidoglycan	1	L22
USPT,JPAB,EPAB,DWPI,TDBD	prahlad.in.	13	L21
USPT,JPAB,EPAB,DWPI,TDBD	desousa-sunita.in.	0	L20
USPT,JPAB,EPAB,DWPI,TDBD	desousa.in.	45	L19
USPT,JPAB,EPAB,DWPI,TDBD	l17 and peptidoglycan	2	L18
USPT,JPAB,EPAB,DWPI,TDBD	l16 and assay?	112	L17
USPT,JPAB,EPAB,DWPI,TDBD	l14 and l15	182	L16
USPT,JPAB,EPAB,DWPI,TDBD	translocase? or transferase? or phosphorylase? or transglycosylase?	1460	L15
USPT,JPAB,EPAB,DWPI,TDBD	magnesium and (lectin adj5 bead? or microbead? or particle? or microparticle? or microsphere?)	62940	L14
USPT,JPAB,EPAB,DWPI,TDBD	l2 and (cell? membrane?)	1	L13
USPT,JPAB,EPAB,DWPI,TDBD	l2 and peptidoglycan	6	L12
USPT,JPAB,EPAB,DWPI,TDBD	"detect? adj3 peptidoglycan"	0	L11
USPT,JPAB,EPAB,DWPI,TDBD	l1 and detect?	1	L10
USPT,JPAB,EPAB,DWPI,TDBD	l2 and l8	7	L9
USPT,JPAB,EPAB,DWPI,TDBD	glucosamine	5539	L8
USPT,JPAB,EPAB,DWPI,TDBD	muramylpentapeptide	1	L7
USPT,JPAB,EPAB,DWPI,TDBD	"acetyl muramylpentapeptide"	0	L6
USPT,JPAB,EPAB,DWPI,TDBD	acetylmuramylpentapeptide	0	L5
USPT,JPAB,EPAB,DWPI,TDBD	l1 and l2	1	L4
USPT,JPAB,EPAB,DWPI,TDBD	l1 and assay?	14	L3
USPT,JPAB,EPAB,DWPI,TDBD	"scintillation proximity assay"	242	L2
DWPI,USPT,EPAB,JPAB,TDBD	peptidoglycan adj3 synthesi$	33	L1

2000

L1	9286	S	(SCINTILLATION PROXIMITY ASSAY?) OR SPA
L2	1610	S	PEPTIDOGLYCAN (2A) SYNTHESI?
L3	1	S	L1 AND L2
L4	182	S	ACETYLMURAMYL PENTAPEPTIDE?
L5	2024	S	ACETYL GLUCOSAMINE?
L6	184	S	TRANSLOCASE? AND TRANSFERASE?
L7	2	S	L6 AND TRANSGLYCOSYLASE?
L8	0	S	L4 AND L5
L9	0	S	L2 AND L4 AND L5 AND L6
L10	1	S	L2 AND (SCINTILLATION AND ?ASSAY?)
L11	2273	S	LECTIN AND (BEAD? OR MICROBEAD? OR PARTICLE? OR MICROPARTICLE
L12	0	S	L11 AND (WHEATGERM 3A AGGLUTININ?)
L13	14	S	L11 AND (WHEATGERM?)
L14	1	S	L13 AND ?ASSAY?
L15	0	S	?ASSAY? AND (PEPTIDOGLYCAN 3A SYNTHESI?)
L16	139	S	PEPTIDOGLYCAN SYNTHESIS AND (?ASSAY? OR DETECT?)
L17	5	S	PEPTIDOGLYCAN SYNTHESIS (5A) (?ASSAY? OR DETECT?)
L18	4	DUP REM	L17 (1 DUPLICATE REMOVED)
L19	0	S	L1 AND L4 AND L5 AND L6
L20	0	S	L1 AND L4 AND L5
L21	0	S	L1 AND L4
L22	4	S	L1 AND L5
L23	0	S	L1 AND L6
L24	0	S	L1 AND L7
L25	1	DUP REM	L22 (3 DUPLICATES REMOVED)
L26	0	S	L4 AND L5 AND L6 AND L7
L27	0	S	L4 AND L5 AND L6
L28	0	S	L4 AND L5
L29	0	S	L4 AND L6 AND L7
L30	0	S	L5 AND L6 AND L7
L31	0	S	L2 AND L11
L32	4	S	L1 AND L11
L33	1	DUP REM	L32 (3 DUPLICATES REMOVED)

L18 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 2000:144749 CAPLUS
DOCUMENT NUMBER: 132:191403
TITLE: Analogs of UDP-MurNAc peptides, assays and kits
INVENTOR(S): Axelrod, Helena R.; Branstrom, Arthur A.
PATENT ASSIGNEE(S): Incara Pharmaceuticals Corp., USA
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000010587	A1	20000302	WO 1999-US18548	19990817
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9955636	A1	20000314	AU 1999-55636	19990817
PRIORITY APPLN. INFO.:			US 1998-97324	19980820
			WO 1999-US18548	19990817

AB General compns. and methods for **detecting** Lipid I, Lipid II, and **peptidoglycan synthesis** is disclosed. A method of screening for potential antibacterial agents is provided which requires bacterial membrane prepns. or enriched enzyme prepns. including at least one bacterial enzyme involved in the synthesis of Lipid I from UDP-MurNAc pentapeptide and undecaprenyl phosphate, at least one bacterial enzyme involved in the synthesis of Lipid II from Lipid I and UDP-GlcNAc and one or more bacterial enzymes involved in the further processing of Lipid II toward the downstream synthesis of peptidoglycan. The methods disclosed herein further provide a labeled UDP-MurNAc-peptide capable of serving as a substrate for a bacterial enzyme involved in the synthesis of Lipid I and a labeled UDP-GlcNAc capable of serving as a substrate for a bacterial enzyme involved in the synthesis of Lipid II. Conditions for further processing of Lipid II toward the downstream synthesis of peptidoglycan are also described.

REFERENCE COUNT: 7
REFERENCE(S):
(1) Hoskins; US 5681694 A 1997 CAPLUS
(3) Ishiguro; J Bacteriol 1978, V135(3), P766 CAPLUS
(5) Tanaka; Biochim Biophys Acta 1977, V497(3), P633 CAPLUS
(6) Wickus; J Biol Chem 1972, V247(17), P5297 CAPLUS
(7) Zemell; J Biol Chem 1975, V250(8), P3185 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB General compns. and methods for **detecting** Lipid I, Lipid II, and **peptidoglycan synthesis** is disclosed. A method of screening for potential antibacterial agents is provided which requires bacterial membrane prepns. or enriched enzyme prepns. including at least one bacterial enzyme involved in the synthesis of Lipid I from UDP-MurNAc pentapeptide and undecaprenyl phosphate, at least one bacterial enzyme involved in the synthesis of Lipid II from Lipid I and UDP-GlcNAc and one or more bacterial enzymes involved in the further processing of Lipid II

toward the downstream synthesis of peptidoglycan. The methods disclosed herein further provide a labeled UDP-MurNAc-peptide capable of serving as a substrate for a bacterial enzyme involved in the synthesis of Lipid I and a labeled UDP-GlcNAc capable of serving as a substrate for a bacterial enzyme involved in the synthesis of Lipid II. Conditions for further processing of Lipid II toward the downstream synthesis of peptidoglycan

L18 ANSWER 3 OF 4 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 84158950 MEDLINE
DOCUMENT NUMBER: 84158950
TITLE: A novel glycan polymerase that synthesizes uncross-linked peptidoglycan in Escherichia coli.
AUTHOR: Hara H; Suzuki H
SOURCE: FEBS LETTERS, (1984 Mar 12) 168 (1) 155-60.
Journal code: EUH. ISSN: 0014-5793.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198407
AB A simple and efficient procedure to **assay peptidoglycan synthesis** in vitro was established. By this procedure, a novel activity for glycan polymerization in Escherichia coli was found in the fraction containing no detectable penicillin-binding protein (PBP). This polymerase activity was relatively insensitive to moenomycin, showed requirement for Ca2+ or Mn2+ but not for Mg2+, and led to production of uncross-linked glycan chains. These properties distinguished the glycan polymerase from the activities shown by the fractions containing PBPs. The glycan polymerase catalyzing polymerization of glycan units from lipid intermediates was purified and identified as a protein of 34 kDa.
AB A simple and efficient procedure to **assay peptidoglycan synthesis** in vitro was established. By this procedure, a novel activity for glycan polymerization in Escherichia coli was found in the. . .

L18 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1968:56575 CAPLUS
DOCUMENT NUMBER: 68:56575
TITLE: Biosynthesis of the peptidoglycan of bacterial cell walls. VIII. Specificity in the utilization of L-alanyl transfer ribonucleic acid for interpeptide bridge synthesis in Arthrobacter crystallopoietes
AUTHOR(S): Roberts, W. S. L.; Petit, Jean F.; Strominger, Jack L.
CORPORATE SOURCE: Univ. of Wisconsin Med. School, Madison, Wis., USA
SOURCE: J. Biol. Chem. (1968), 243(4), 768-72
CODEN: JBCHA3
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A particulate enzyme system which catalyzes the biosynthesis of the peptidoglycan of A. crystallopoietes from uridine nucleotide substrates and the simultaneous incorporation of L-alanine into the interpeptide bridge of the peptidoglycan was obtained. The incorporation of L-alanine required L-alanyl transfer RNA (L-alanyl-tRNA) as an intermediate. L-Cysteinyl-tRNA was converted to L-alanyl-tRNA by redn. with Raney Ni described in studies of protein synthesis. This L-alanyl-tRNACys (cysteine acceptor tRNA) did not participate **detectably** in **peptidoglycan synthesis**. There is therefore some specificity in the participation of tRNA in peptidoglycan synthesis. 17 references.
AB A particulate enzyme system which catalyzes the biosynthesis of the peptidoglycan of A. crystallopoietes from uridine nucleotide substrates and the simultaneous incorporation of L-alanine into the interpeptide bridge of the peptidoglycan was obtained. The incorporation of L-alanine required L-alanyl transfer RNA (L-alanyl-tRNA) as an intermediate.

L-Cysteinyl-tRNA was converted to L-alanyl-tRNA by redn. with Raney Ni described in studies of protein synthesis. This L-alanyl-tRNACys (cysteine acceptor tRNA) did not participate **detectably** in **peptidoglycan synthesis**. There is therefore some specificity in the participation of tRNA in peptidoglycan synthesis. 17 references.

L20 ANSWER 1 OF 5 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000141264 MEDLINE
DOCUMENT NUMBER: 20141264
TITLE: Chlorobiphenyl-desleucyl-vancomycin inhibits the transglycosylation process required for **peptidoglycan** synthesis in bacteria in the absence of dipeptide binding.
AUTHOR: Goldman R C; Baizman E R; Longley C B; Branstrom A A
CORPORATE SOURCE: Incara Research Laboratories, 8 Cedar Brook Drive, Cranbury, NJ 08512, USA.. rgoldman@irl.incara.com
SOURCE: FEMS MICROBIOLOGY LETTERS, (2000 Feb 15) 183 (2) 209-14. Journal code: FML. ISSN: 0378-1097.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200006
ENTRY WEEK: 20000602
AB Novel glycopeptide analogs are known that have activity on vancomycin resistant enterococci despite the fact that the primary site for drug interaction, D-ala-D-ala, is replaced with D-ala-D-lactate. The mechanism of action of these compounds may involve dimerization and/or membrane binding, thus enhancing interaction with D-ala-D-lactate, or a direct interaction with the **transglycosylase** enzymes involved in **peptidoglycan** polymerization. We evaluated the ability of vancomycin (V), desleucyl-vancomycin (desleucyl-V), chlorobiphenyl-vancomycin (CBP-V), and chlorobiphenyl-desleucyl-vancomycin (CBP-desleucyl-V) to inhibit (a) **peptidoglycan** synthesis in vitro using **UDP**-muramyl-pentapeptide and **UDP** -muramyl-tetrapeptide substrates and (b) growth and **peptidoglycan** synthesis in vancomycin resistant enterococci. Compared to V or CBP-V, CBP-desleucyl-V retained equivalent potency in these assays, whereas desleucyl-V was inactive. In addition, CBP-desleucyl-V caused accumulation of N-**acetylglucosamine**-beta-1, 4-**MurNAc** -pentapeptide-pyrophosphoryl-undecaprenol (lipid II). These data show that CBP-desleucyl-V inhibits **peptidoglycan** synthesis at the transglycosylation stage in the absence of binding to dipeptide.
TI Chlorobiphenyl-desleucyl-vancomycin inhibits the transglycosylation process required for **peptidoglycan** synthesis in bacteria in the absence of dipeptide binding.
AB . . . of these compounds may involve dimerization and/or membrane binding, thus enhancing interaction with D-ala-D-lactate, or a direct interaction with the **transglycosylase** enzymes involved in **peptidoglycan** polymerization. We evaluated the ability of vancomycin (V), desleucyl-vancomycin (desleucyl-V), chlorobiphenyl-vancomycin (CBP-V), and chlorobiphenyl-desleucyl-vancomycin (CBP-desleucyl-V) to inhibit (a) **peptidoglycan** synthesis in vitro using **UDP**-muramyl-pentapeptide and **UDP** -muramyl-tetrapeptide substrates and (b) growth and **peptidoglycan** synthesis in vancomycin resistant enterococci. Compared to V or CBP-V, CBP-desleucyl-V retained equivalent potency in these assays, whereas desleucyl-V was inactive. In addition, CBP-desleucyl-V caused accumulation of N-**acetylglucosamine**-beta-1, 4-**MurNAc** -pentapeptide-pyrophosphoryl-undecaprenol (lipid II). These data show that

CBP-desleucyl-V inhibits **peptidoglycan** synthesis at the transglycosylation stage in the absence of binding to dipeptide.

CT *Antibiotics, Glycopeptide: PD, pharmacology
*Bacteria: DE, drug effects
*Bacteria: ME, metabolism
Dipeptides: ME, metabolism
Glycosylation
***Peptidoglycan: BI, biosynthesis**
*Vancomycin: AA, analogs & derivatives
Vancomycin: PD, pharmacology

CN 0 (chlorobiphenyl-desleucyl-vancomycin); 0 (Antibiotics, Glycopeptide); 0 (Dipeptides); 0 (**Peptidoglycan**)

L20 ANSWER 2 OF 5 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 91258324 MEDLINE
DOCUMENT NUMBER: 91258324
TITLE: Analysis of murein and murein precursors during antibiotic-induced lysis of Escherichia coli.
AUTHOR: Kohlrausch U; Holtje J V
CORPORATE SOURCE: Abteilung Biochemie, Max-Planck-Institut fur Entwicklungsbiologie, Federal Republic of Germany..
SOURCE: JOURNAL OF BACTERIOLOGY, (1991 Jun) 173 (11) 3425-31. Journal code: HH3. ISSN: 0021-9193.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199109

AB Lysis of Escherichia coli induced by either D-cycloserine, moenomycin, or penicillin G was monitored by studying murein metabolism. The levels of the soluble murein precursor **UDP**-N-acetylmuramyl-L-alanyl-D-glutamyl-m-diaminopimelyl-D-alanyl- D-alanine (**UDP-MurNAc**-pentapeptide) and the carrier-linked **MurNAc**-(pentapeptide)-pyrophosphoryl-undecaprenol as well as N-**acetylglucosamine**-beta-1,4-**MurNAc**-(pentapeptide)-pyrophosphoryl- undecaprenol varied in a specific way. In the presence of penicillin, which is known to interfere with the cross-linking of murein, the concentration of the lipid-linked precursors unexpectedly decreased before the onset of lysis, although the level of **UDP-MurNAc**-pentapeptide remained normal. In the case of moenomycin, which specifically blocks the formation of the murein polysaccharide strands, the lipid-linked precursors as well as **UDP-MurNAc**-pentapeptide accumulated as was expected. D-Cycloserine, which inhibits the biosynthesis of **UDP-MurNAc**-pentapeptide, consequently caused a decrease in all three precursors. The muropeptide composition of the murein showed general changes such as an increase in the unusual DL-cross bridge between two neighboring meso-diaminopimelic acid residues and, as a result of uncontrolled DL- and DD-carboxypeptidase activity, an increase in tripeptidyl and a decrease in tetrapeptidyl and pentapeptidyl moieties. The average length of the **glycan** strands decreased. When the **glycan** strands were fractionated according to length, a dramatic increase in the amount of single disaccharide units was observed not only in the presence of penicillin but also in the presence of moenomycin. This result is explained by the action of an exo-muramidase, such as the lytic **transglycosylases** present in E. coli. It is proposed that antibiotic-induced bacteriolysis is the result of a zipperlike splitting of the murein net by exo-muramidases locally restricted to the equatorial zone of the cell.

AB . . . by either D-cycloserine, moenomycin, or penicillin G was monitored by studying murein metabolism. The levels of the soluble murein precursor **UDP**-N-acetylmuramyl-L-alanyl-D-glutamyl-m-diaminopimelyl-D-alanyl- D-alanine (**UDP-MurNAc**

-pentapeptide) and the carrier-linked **MurNAc**-(pentapeptide)-pyrophosphoryl-undecaprenol as well as N-**acetylglucosamine**-beta-1,4-**MurNAc**-(pentapeptide)-pyrophosphoryl- undecaprenol varied in a specific way. In the presence of penicillin, which is known to interfere with the cross-linking of murein, the concentration of the lipid-linked precursors unexpectedly decreased before the onset of lysis, although the level of **UDP-MurNAc**-pentapeptide remained normal. In the case of moenomycin, which specifically blocks the formation of the murein polysaccharide strands, the lipid-linked precursors as well as **UDP-MurNAc**-pentapeptide accumulated as was expected. D-Cycloserine, which inhibits the biosynthesis of **UDP-MurNAc**-pentapeptide, consequently caused a decrease in all three precursors. The muropeptide composition of the murein showed general changes such as an. . . and DD-carboxypeptidase activity, an increase in tripeptidyl and a decrease in tetrapeptidyl and pentapeptidyl moieties.

The average length of the **glycan** strands decreased. When the **glycan** strands were fractionated according to length, a dramatic increase in the amount of single disaccharide units was observed not only.

. . also in the presence of moenomycin. This result is explained by the action of an exo-muramidase, such as the lytic **transglycosylases** present in E. coli. It is proposed that antibiotic-induced bacteriolysis is the result of a zipperlike splitting of the murein. . .

CT . . . effects
Bambermycins: PD, pharmacology
Chromatography, High Pressure Liquid
Cycloserine: PD, pharmacology
Escherichia coli: DE, drug effects
Penicillin G: PD, pharmacology
***Peptidoglycan: ME, metabolism**
Uridine Diphosphate N-Acetylglucosamine: AN, analysis
Uridine Diphosphate N-Acetylmuramic Acid: AA, analogs & derivatives
Uridine Diphosphate N-Acetylmuramic Acid: AN, analysis
Uridine. . .

RN 11015-37-5 (Bambermycins); **16124-22-4 (UDP-N-acetylmuramic acid pentapeptide)**; **528-04-1 (Uridine Diphosphate N-Acetylglucosamine)**; 61-33-6 (Penicillin G); 68-41-7 (Cycloserine)

L20 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1989:570964 CAPLUS
DOCUMENT NUMBER: 111:170964
TITLE: Liposidomycin C inhibits phospho-N-acetylmuramyl-pentapeptide transferase in **peptidoglycan** synthesis of Escherichia coli Y-10
AUTHOR(S): Kimura, Kenichi; Miyata, Nobuo; Kawanishi, Gosei; Kamio, Yoshiyuki; Izaki, Kazuo; Isono, Kiyoshi
CORPORATE SOURCE: Res. Inst. Life Sci., Snow Brand Milk Prod. Co., Ltd., Tochigi, 329-05, Japan
SOURCE: Agric. Biol. Chem. (1989), 53(7), 1811-15
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Liposidomycin C is a novel nucleoside antibiotic contg. uracil, a sulfated amino sugar, and a fatty acid. It is a specific inhibitor of **peptidoglycan** synthesis of bacteria, inhibiting the formation of lipid intermediates from **UDP**-N-acetylmuramyl-L-alanyl-D-glutamyl-meso-diaminopimelyl-D-[14C]alanyl-D-[14C]alanine and **UDP**-N-**acetylglucosamine** with a particulate enzyme from E. coli Y-10. It also inhibited the formation of **MurNAc**(-pentapeptide)-P-P-lipid in the absence of **UDP-N-acetylglucosamine**. On the other hand, it inhibited the activity of N-**acetylglucosamine**

transglycosylase and **peptidoglycan** **transglycosylase** only weakly using the same system from E. coli. Apparently, the site of action of liposidomycin C is phospho-N-acetylmuramyl-pentapeptide transferase in **peptidoglycan** synthesis.

TI Liposidomycin C inhibits phospho-N-acetylmuramyl-pentapeptide transferase in **peptidoglycan** synthesis of Escherichia coli Y-10

AB Liposidomycin C is a novel nucleoside antibiotic contg. uracil, a sulfated amino sugar, and a fatty acid. It is a specific inhibitor of **peptidoglycan** synthesis of bacteria, inhibiting the formation of lipid intermediates from **UDP**-N-acetylmuramyl-L-alanyl-D-glutamyl-meso-diaminopimelyl-D-[14C]alanyl-D-[14C]alanine and **UDP**-N-**acetylglucosamine** with a particulate enzyme from E. coli Y-10. It also inhibited the formation of **MurNAc**(-pentapeptide)-P-P-lipid in the absence of **UDP**-N-**acetylglucosamine**. On the other hand, it inhibited the activity of N-**acetylglucosamine** **transglycosylase** and **peptidoglycan** **transglycosylase** only weakly using the same system from E. coli. Apparently, the site of action of liposidomycin C is phospho-N-acetylmuramyl-pentapeptide transferase in **peptidoglycan** synthesis.

ST liposidomycin C **peptidoglycan** formation Escherichia; phosphoacetylmuramylpentapeptide transferase inhibition liposidomycin

IT Escherichia coli
(**peptidoglycan** formation by, liposidomycin C inhibition of)

IT 99751-54-9, Liposidomycin C
RL: BIOL (Biological study)
(**peptidoglycan** formation inhibition by, in Escherichia coli)

L20 ANSWER 4 OF 5 MEDLINE DUPLICATE 3

ACCESSION NUMBER: 86196149 MEDLINE
DOCUMENT NUMBER: 86196149
TITLE: **Peptidoglycan** synthetic activities in membranes of Escherichia coli caused by overproduction of penicillin-binding protein 2 and rodA protein.
AUTHOR: Ishino F; Park W; Tomioka S; Tamaki S; Takase I; Kunugita K; Matsuzawa H; Asoh S; Ohta T; Spratt B G; et al
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1986 May 25) 261 (15) 7024-31.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198608

AB Penicillin-binding protein (PBP)-2 and the RodA protein are known to function in determining the rod shape of Escherichia coli cells. **Peptidoglycan** biosynthetic reactions that required these two proteins were demonstrated in the membrane fraction prepared from an E. coli strain that overproduced both of these two proteins and which lacked PBP-1B activity (the major **peptidoglycan** synthetase activity in the normal E. coli membranes). The cross-linked **peptidoglycan** was synthesized from **UDP**-N-**acetylmuramylpentapeptide** and **UDP**-N-**acetylglucosamine** in the presence of a high concentration of cefmetazole that inhibited all of PBPs except PBP-2. The **peptidoglycan** was synthesized via a lipid intermediate and showed up to 30% cross-linking. The cross-linking reaction was strongly inhibited by the amidinopenicillin, mecillinam, and by other beta-lactam antibiotics that have a high affinity for PBP-2, but not by beta-lactams that had very low affinity for PBP-2. The formation of **peptidoglycan** required the presence of high levels of both PBP-2 and the RodA protein in the membranes, but it is unclear which of the two proteins was primarily

responsible for the extension of the **glycan** chains (transglycosylation). However, the sensitivity of the cross-linking reaction to specific beta-lactam antibiotics strongly suggested that it was catalyzed by PBP-2. The **transglycosylase** activity of the membranes was sensitive to enramycin and vancomycin and was unusual in being stimulated greatly by a high concentration of a chelating agent.

TI **Peptidoglycan** synthetic activities in membranes of Escherichia coli caused by overproduction of penicillin-binding protein 2 and rodA protein.

AB Penicillin-binding protein (PBP)-2 and the RodA protein are known to function in determining the rod shape of Escherichia coli cells. **Peptidoglycan** biosynthetic reactions that required these two proteins were demonstrated in the membrane fraction prepared from an E. coli strain that overproduced both of these two proteins and which lacked PBP-1B activity (the major **peptidoglycan** synthetase activity in the normal E. coli membranes). The cross-linked **peptidoglycan** was synthesized from **UDP-N-acetylmuramylpentapeptide** and **UDP-N-acetylglucosamine** in the presence of a high concentration of cefmetazole that inhibited all of PBPs except PBP-2. The **peptidoglycan** was synthesized via a lipid intermediate and showed up to 30% cross-linking. The cross-linking reaction was strongly inhibited by the. . . have a high affinity for PBP-2, but not by beta-lactams that had very low affinity for PBP-2. The formation of **peptidoglycan** required the presence of high levels of both PBP-2 and the RodA protein in the membranes, but it is unclear which of the two proteins was primarily responsible for the extension of the **glycan** chains (transglycosylation). However, the sensitivity of the cross-linking reaction to specific beta-lactam antibiotics strongly suggested that it was catalyzed by PBP-2. The **transglycosylase** activity of the membranes was sensitive to enramycin and vancomycin and was unusual in being stimulated greatly by a high. . .

CT . . .

& purification

*Membrane Proteins: ME, metabolism
Muramoylpentapeptide Carboxypeptidase: BI, biosynthesis
*Muramoylpentapeptide Carboxypeptidase: ME, metabolism
*Penicillins: ME, metabolism
Penicillins: PD, pharmacology
***Peptidoglycan: BI, biosynthesis**
Plasmids

L20 ANSWER 5 OF 5 MEDLINE
ACCESSION NUMBER: 76253526 MEDLINE
DOCUMENT NUMBER: 76253526
TITLE: Steric effects on penicillin-sensitive **peptidoglycan** synthesis in a membrane-wall system
Gaffkya homari.
AUTHOR: Carpenter C V; Goyer S; Neuhaus F C
SOURCE: BIOCHEMISTRY, (1976 Jul 13) 15 (14) 3146-52.
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LANGUAGE: English
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ENTRY MONTH: 197612

AB Residues 4 and 5 of the pentapeptide moiety, R-Ala1-DGlu2-Lys3-DAla4-DAla5, of **peptidoglycan** play an important role in the donor phase of cross-linked **glycan** synthesis. To assess the role of these residues in this phase, a series of **UDP-MurNAc** -peptides were biosynthesized with residues 4 and 5 replaced singly by either D-alpha-amino-n-butyric acid, D-norvaline, or D-valine. The six nucleotides were compared with **UDP-MurNAc** -Ala-DGlu-Lys-DAla-DAla (reference) in nascent (penicillin-insensitive) **peptidoglycan** synthesis and in penicillin-sensitive

peptidoglycan synthesis. The synthesis of penicillin-sensitive **peptidoglycan** is catalyzed by membrane-walls isolated from Gaffkya homari and would appear to require the concerted action of **transglycosylase** and transpeptidase. The membrane-wall system shows a high degree of discrimination for the steric substituents, -CH3 and -CH2CH3, in residue 4. For example, for **UDP-MurNAc** -Ala-DGly-Lys-DAbu-DAla and -Ala-DGlu-Lys-DAla-DAbu, Vmax/km is 0.19 and 0.95 and Vmax is 0.03 and 0.52, respectively, of the value for the reference nucleotide. In contrast, for the synthesis of nascent **peptidoglycan** with these nucleotides Vmax/Km is 0.75 and 0.80, and Vmax is 0.71 and 1.0, respectively, of the value for the reference nucleotide. This trend was also illustrated with the other nucleotides in the time course experiments. These results indicate that the penicillin-sensitive enzyme(s), presumably the transpeptidase, has a higher degree of specificity in the donor phase for D-alanine in residue 4 than for D-alanine in residue 5 in the cross-linking stage of **peptidoglycan** synthesis.

TI Steric effects on penicillin-sensitive **peptidoglycan** synthesis in a membrane-wall system Gaffkya homari.

AB Residues 4 and 5 of the pentapeptide moiety, R-Ala1-DGlu2-Lys3-DAla4-DAla5, of **peptidoglycan** play an important role in the donor phase of cross-linked **glycan** synthesis. To assess the role of these residues in this phase, a series of **UDP-MurNAc** -peptides were biosynthesized with residues 4 and 5 replaced singly by either D-alpha-amino-n-butyric acid, D-norvaline, or D-valine. The six nucleotides were compared with **UDP-MurNAc** -Ala-DGlu-Lys-DAla-DAla (reference) in nascent (penicillin-insensitive) **peptidoglycan** synthesis and in penicillin-sensitive **peptidoglycan** synthesis. The synthesis of penicillin-sensitive **peptidoglycan** is catalyzed by membrane-walls isolated from Gaffkya homari and would appear to require the concerted action of **transglycosylase** and transpeptidase. The membrane-wall system shows a high degree of discrimination for the steric substituents, -CH3 and -CH2CH3, in residue 4. For example, for **UDP-MurNAc** -Ala-DGly-Lys-DAbu-DAla and -Ala-DGlu-Lys-DAla-DAbu, Vmax/km is 0.19 and 0.95 and Vmax is 0.03 and 0.52, respectively, of the value for the reference nucleotide. In contrast, for the synthesis of nascent **peptidoglycan** with these nucleotides Vmax/Km is 0.75 and 0.80, and Vmax is 0.71 and 1.0, respectively, of the value for the. . . in the donor phase for D-alanine in residue 4 than for D-alanine in residue 5 in the cross-linking stage of **peptidoglycan** synthesis.

CT **Acetylglucosamine: ME, metabolism**
Adenosine Triphosphate: PD, pharmacology
Alanine
Allosteric Site
*Cell Membrane: ME, metabolism
Kinetics
Magnesium: PD, pharmacology
*Micrococcaceae: ME, metabolism
*Micrococcus: ME, metabolism
Oligopeptides: ME, metabolism
Penicillin G: PD, pharmacology
*Penicillins: PD, pharmacology
***Peptidoglycan: BI, biosynthesis**
Phosphotransferases: ME, metabolism
*Streptococcaceae: ME, metabolism
Structure-Activity Relationship
Uridine Diphosphate N-Acetylmuramic Acid: ME, metabolism
Valine

L36 ANSWER 1 OF 5 USPATFULL
ACCESSION NUMBER: 2000:21400 USPATFULL
TITLE: Penicillin binding protein derivatives and uses thereof
INVENTOR(S): Balganesh, Tanjore Soundararajan, Bangalore, India
Town, Christine Mary, Sodertalje, Sweden
PATENT ASSIGNEE(S): Astra Aktiebolag, Sodertalje, Sweden (non-U.S. corporation)

	NUMBER	DATE	
PATENT INFORMATION:	US 6027906	20000222	
	WO 9616082	19960530	
APPLICATION INFO.:	US 1995-481435	19950710	(8)
	WO 1995-SE761	19950621	
		19950710	PCT 371 date
		19950710	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	SE 1994-4072	19941124

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Allen, Marianne P.
LEGAL REPRESENTATIVE: White & Case LLP
NUMBER OF CLAIMS: 33
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 28 Drawing Figure(s); 14 Drawing Page(s)
LINE COUNT: 3441
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to variants of Penicillin Binding Proteins (PBP), which proteins are involved in bacterial **peptidoglycan** biosynthesis. Disclosed are also DNA molecules coding for the said PBP variants, as well as vectors and cells harbouring such DNA molecules. The invention is also related to processes for assaying and designing therapeutically useful compounds which have high affinity to PBP, which processes utilize the said PBP variants.

AB The present invention relates to variants of Penicillin Binding Proteins (PBP), which proteins are involved in bacterial **peptidoglycan** biosynthesis. Disclosed are also DNA molecules coding for the said PBP variants, as well as vectors and cells harbouring such. . .

SUMM The present invention relates to variants of Penicillin Binding Proteins (PBP), which proteins are involved in bacterial **peptidoglycan** biosynthesis. Disclosed are also DNA molecules coding for the said PBP variants, as well as vectors and cells harbouring such. . .

SUMM Bacteria and most other unicellular organisms possess a cell wall, which comprises a cross-linked polysaccharide-peptide complex called **peptidoglycan**. **Peptidoglycan** biosynthesis consists of three stages: (1) synthesis of precursors (sugar nucleotides) in the cytosol, (2) precursor transfer across the membrane and formation of the polysaccharide chain, and (3) cross-linking of individual **peptidoglycan** strands in the cell wall.

SUMM In the latter stage of **peptidoglycan** biosynthesis, new bonds must be made between nascent glycan strands and existing **peptidoglycan**. The newly synthesized chains are about 10

disaccharides long and are extended by transglycosylase enzymes to a final glycan strand of between 100 and 150 disaccharide units. The **peptidoglycan** is crosslinked by the action of transpeptidases which link the terminal D-ala of one glycan strand to a free .epsilon.-amino. . .

SUMM A number of antibiotics inhibit bacterial growth by interfering with the formation of the **peptidoglycan** layer. The cross-linking reaction is the target for action of two important classes of such antibiotics, the penicillins and the. . .

SUMM . . . High Molecular Weight-PBPs. PBP 1A and 1B, which are known to be membrane bound proteins, maintain cell integrity and control **peptidoglycan** side wall extension during growth. Inactivation of either PBP 1A or PBP 1B can be tolerated by the bacteria while. . .

SUMM . . . been shown to be present in Escherichia coli, Staphylococcus aureiis, Bacillus megateriium and Bacillus subtilis. This suggests that interference of **peptidoglycan** biosynthesis by inhibition of transglycosylase could be a lethal event in all clinically important pathogens.

DETD . . . 6 hours of induction at 22.degree. C. was washed twice with buffer A (30 mM Tris-Cl, pH 8.0; 10 mM **EDTA**; 10 .mu.g/ml leupeptin; 10 .mu.g/ml aprotinin; 5 mM DTT) and resuspended in the same buffer. The cell suspension was passed. . .

DETD . . . protocols described by Heijenoort et al. (1992). The concentration dependent transglycosylase activity of PBP 1Adel23 measured as the amount of **peptidoglycan** formed was compared to the amounts of **peptidoglycan** formed by different concentrations of the membrane bound form of native PBP 1A. As seen in FIG. 6, the **peptidoglycan** polymerizing efficiency of the mutant soluble PBP 1Adel23 was nearly identical to the enzymic activity of the membrane bound form. . .

DETD The purified protein was enzymatically active in the **peptidoglycan transglycosylase assay** (Heijenoort et al., 1992) and bound penicillin with an affinity comparable to that of the membrane bound native PBP 1B.

DETD After **assaying** for **transglycosylase** activity as described in Heijenoort et al. (1978), no activity could be detected in the membranes expressing the mutant proteins,. . .

DETD . . . a fusion protein of expected size was found to be induced. The protein bound penicillin and was active in the **transglycosylase assay**. Following cell lysis by passing the suspension through a French press, the cell free supernatant fraction was prepared as detailed. . .

DETD . . . the recombinant fusion protein was labelled PBP 1Adel23EH. This protein PBP 1Adel23EH bound [.sup.125 I]cephradine and was also active in **transglycosylase assay**. The soluble fraction was passed through a Ni affinity column and bound protein eluted in batches with increasing concentrations of. . .

DETD . . . PBP 1A solubilised with octyl-.beta.-glucoside. X-axis represents the concentration of the proteins used in .mu.g. Y-axis represents the quantities of **peptidoglycan** formed.

L36 ANSWER 3 OF 5 USPATFULL

ACCESSION NUMBER: 96:29470 USPATFULL
TITLE: Bacillus strain for breaking down moenomycins
INVENTOR(S): Aretz, Werner, Konigstein/Taunus, Germany, Federal Republic of
Bottger, Dirk, Hustetten, Germany, Federal Republic of
Seibert, Gerhard, Darmstadt, Germany, Federal Republic of
Tumulka, Alois, Konigstein/Taunus, Germany, Federal Republic of
Welzel, Peter, Bochum, Germany, Federal Republic of
Hobert, Kurt, Bochum, Germany, Federal Republic of
PATENT ASSIGNEE(S): Hoechst Aktiengesellschaft, Frankfurt am Main, Germany,
Federal Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5506140	19960409
APPLICATION INFO.:	US 1995-403575	19950314 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1994-202760, filed on 28 Feb 1994, now abandoned which is a division of Ser. No.
US 1993-48511, filed on 20 Apr 1993, now patented, Pat. No. US 5315038 which is a continuation-in-part of Ser. No. US 1992-927886, filed on 11 Aug 1992, now patented, Pat. No. US 5206405 which is a continuation of Ser. No.
US 1990-617635, filed on 26 Nov 1990, now abandoned which is a division of Ser. No. US 1989-395790, filed on 18 Aug 1989, now abandoned And a continuation-in-part of Ser. No. US 1992-938599, filed on 3 Sep 1992, now patented, Pat. No. US 5260206 which is a continuation-in-part of Ser. No. US 1991-762262, filed on 20 Sep 1991, now abandoned which is a continuation of Ser. No. US 1991-711708, filed on 7 Jun 1991, now abandoned which is a continuation of Ser. No.
US 1989-395790, filed on 18 Aug 1989, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1988-3828337	19880820

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Marx, Irene
LEGAL REPRESENTATIVE: Finnegan, Henderson, Farabow, Garrett & Dunner
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
LINE COUNT: 637
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A new Bacillus species and the appropriate enzymes obtained therefrom can be used to break down phosphoglycolipid antibiotics. The breakdown products of moenomycins display antibiotic activity or can be used as building blocks for the synthetic preparation of transglycosylase inhibitors.

SUMM . . . component of Flavomycin.RTM. which is used in livestock nutrition. Like other known phosphoglycolipid antibiotics it inhibits the biosynthesis of the **peptidoglycan** framework of the bacterial cell wall. Closer investigations showed that the transglycosylation reaction of the penicillin-binding protein 1b of E.. . .

SUMM . . . moenomycinase is 230,000.+-.10,000 Dalton. Moenomycinase is activated by Co.sup.++, Ni.sup.++, Mn.sup.++, Ca.sup.++ and Mg.sup.++, and can be inhibited by formalin, **EDTA**, Cephalosporin C, and 7-aminocephalosporin acid (7-ACA).

DETD **Transglycosylase Assay**

DETD . . . moenomycin cleavage products in vitro is shown in the following

Table. The values in the Table show the inhibition of **peptidoglycan**-sugar chain synthesis in vitro. Decahydro MB is an analog of MB that has no double bonds in the alkyl chain.

DETD

Inhibition of In Vitro **Peptidoglycan** Synthesis

Compound	Final Concentration (.mu.g/l)	% Inhibition
MB	12.5	94
MA	12.5	67
Decahydro MB	12.5	28

DETD The unprotected inhibitor is then used for the **assay**. **Transglycosylase** activity is **assayed** by the method of Example 8.

L28 ANSWER 2 OF 6 USPATFULL
ACCESSION NUMBER: 2000:28112 USPATFULL
TITLE: Peptidoglycan recognition proteins and their production
INVENTOR(S): Ashida, Masaaki, Sapporo, Japan
Ochiai, Masanori, Sapporo, Japan
Tsuchiya, Masakazu, Hyogo, Japan
PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Osaka, Japan (non-U.S. corporation)

	NUMBER	DATE	
PATENT INFORMATION:	US 6034217	20000307	
APPLICATION INFO.:	US 1997-928917	19970912	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-244512	19960917

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Kemmerer, Elizabeth
ASSISTANT EXAMINER: Romeo, David S.
LEGAL REPRESENTATIVE: Conlin, David G.; Lowen, Cara Z.Dike, Bronstein, Roberts & Cushman, LLP
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 1442
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A gene coding for a peptidoglysan recognition peptide (PGRP) is cloned, a recombinant vector into which said gene is introduced is obtained, and a transformant transformed with said recombinant vector is cultivated, thereby producing the PGRP in large amounts at high purity.

SUMM Accordingly, a trace amount of bacteria contained in various kinds of objects can be detected by subjecting the objects to **detection** and measurement of **peptidoglycans**. The **detection** and measurement of **peptidoglycans** are therefore expected to be applied to safety tests of drugs, microbial tests of water and food, and diagnoses of. . .

SUMM . . . Many of these activities are in common with the functions of endotoxins, and weaker in intensity than the endotoxins. However, **detection** and measurement of **peptidoglycans** contained, for example, in drugs or food are considered to become increasingly important from now on, because of such activities. . .

SUMM As a method for **detecting** and measuring **peptidoglycans**, a method developed by the present inventors in which a silkworm hemolymph-derived reagent is used is reported in Japanese Examined. .

DETD (1) The **detection** of **peptidoglycans** is possible by observation of binding with labeled PGRPs, and the detection of bacteria is possible as well;

DETD (4) In the method for **assaying peptidoglycans** by use of the insect hemolymph reagents, bacteria themselves are collected with filters. However, the peptidoglycans low in molecular weight. . .

DETD Use of the PGRPs obtained by the method of the present invention to

which appropriate labeling substances bind permits the **detection** of **peptidoglycans** in samples or cells at high sensitivity and high accuracy.

DETD . . . the labeling substances used for labeling the PGRPs for such a purpose, as long as they can be used for **detecting** the **peptidoglycans** in samples or cells. Preferred examples thereof include enzymes such as alkaline phosphatase, .beta.-galactosidase, peroxidase, microperoxidase, glucose oxidase, glucose 6-phosphate.

DETD . . . substances bind (hereinafter briefly referred to as labeled PGRPs), the labeling substances in complexes of the labeled PGRPs and the **peptidoglycans** are measured. The **assays** thereof are performed depending on properties detectable by some method according to respective prescribed methods. For example, in the case.

DETD . . . fixed to appropriate carriers, also permits concentration of peptidoglycans in samples or peptidoglycan-containing cells, resulting in a great increase in **detection** sensitivity of the **peptidoglycans** in samples or the peptidoglycan-containing cells.

DETD . . . centrifuged, and the precipitate was suspended in 390 ml of 0.2 M potassium phosphate buffer, pH 6.5, containing 1 mM **EDTA**, 1 mM 1,10-phenanthroline, 1 mM phenylmethanesulfonyl fluoride, 5 mM phenylthiourea and 1% ethanol. The suspension was stirred for 2 hours,. . .

L27 ANSWER 1 OF 1 USPATFULL

ACCESSION NUMBER:	92:68165 USPATFULL
TITLE:	Assay method for detecting listeria
INVENTOR(S):	Green, Calvert L., Norfolk, MA, United States Fiedler, Franz, Munich, Germany, Federal Republic of Hansen, Thomsen J., Brookline, MA, United States Wogan, Gerald N., Belmont, MA, United States Tannenbaum, Steven R., Framingham, MA, United States Benjamin, Thomas L., Cambridge, MA, United States
PATENT ASSIGNEE(S):	VICAM, L.P., Somerville, MA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5139933	19920818
APPLICATION INFO.:	US 1990-542695	19900625 (7)

RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1989-459246, filed on 29 Dec 1989, now abandoned which is a continuation-in-part of Ser. No. US 1989-412446, filed on 26 Sep 1989, now abandoned
DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Kepplinger, Esther L.
ASSISTANT EXAMINER:	Bidwell, Carol E.
LEGAL REPRESENTATIVE:	Birch, Stewart, Kolasch & Birch
NUMBER OF CLAIMS:	25
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT:	777

AB An assay method is provided to quickly detect the presence of Listeria strains in samples, characterized by the use of antibodies to selectively capture the peptidoglycan and teichoic acid components of the listeriae bacterial cell wall.

DETD The present invention takes advantage of these structural characteristics of the listeriae **bacterial cell wall** to provide an **assay** method which is capable of detecting the presence of Listeria strains, and, if desired, is able to distinguish between strains. . .

DETD . . . approximately 1.times.10.sup.8 cells per ml. Subsequently 1.times.10.sup.7 cells are passed over a column containing 0.2 ml bed volume of agarose **beads** with wheat germ **lectin** attached. Wheat germ lectins bind to bacterial cell surface sugars. Although inefficient at capturing the Listeria cells, approximately 10%, or. . .

L5 ANSWER 2 OF 4 USPATFULL

ACCESSION NUMBER:	2000:28112 USPATFULL
TITLE:	Peptidoglycan recognition proteins and their production
INVENTOR(S):	Ashida, Masaaki, Sapporo, Japan Ochiai, Masanori, Sapporo, Japan Tsuchiya, Masakazu, Hyogo, Japan
PATENT ASSIGNEE(S):	Wako Pure Chemical Industries, Ltd., Osaka, Japan (non-U.S. corporation)

	NUMBER	DATE	
PATENT INFORMATION:	US 6034217	20000307	
APPLICATION INFO.:	US 1997-928917	19970912	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-244512	19960917

DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Kemmerer, Elizabeth
ASSISTANT EXAMINER:	Romeo, David S.
LEGAL REPRESENTATIVE:	Conlin, David G.; Lowen, Cara Z.Dike, Bronstein, Roberts & Cushman, LLP
NUMBER OF CLAIMS:	2
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT:	1442

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A gene coding for a peptidoglysan recognition peptide (PGRP) is cloned, a recombinant vector into which said gene is introduced is obtained, and a transformant transformed with said recombinant vector is cultivated, thereby producing the PGRP in large amounts at high purity.

SUMM Accordingly, a trace amount of bacteria contained in various kinds of objects can be detected by subjecting the objects to **detection** and measurement of **peptidoglycans**. The **detection** and measurement of **peptidoglycans** are therefore expected to be applied to safety tests of drugs, microbial tests of water and food, and diagnoses of. . .

SUMM . . . Many of these activities are in common with the functions of endotoxins, and weaker in intensity than the endotoxins. However, **detection** and measurement of **peptidoglycans** contained, for example, in drugs or food are considered to become increasingly important from now on, because of such activities. . .

SUMM As a method for **detecting** and measuring **peptidoglycans**, a method developed by the present inventors in which a silkworm hemolymph-derived reagent is used is reported in Japanese Examined. .

DETD (1) The **detection** of **peptidoglycans** is possible by observation of binding with labeled PGRPs, and the detection of bacteria is possible as well;

DETD Use of the PGRPs obtained by the method of the present invention to which appropriate labeling substances bind permits the **detection** of **peptidoglycans** in samples or cells at high sensitivity and high accuracy.

DETD . . . the labeling substances used for labeling the PGRPs for such a purpose, as long as they can be used for **detecting** the

peptidoglycans in samples or cells. Preferred examples thereof include enzymes such as alkaline phosphatase, .beta.-galactosidase, peroxidase, microperoxidase, glucose oxidase, glucose 6-phosphate. . .

DETD . . . fixed to appropriate carriers, also permits concentration of peptidoglycans in samples or peptidoglycan-containing cells, resulting in a great increase in **detection** sensitivity of the **peptidoglycans** in samples or the peptidoglycan-containing cells.

DETD . . . centrifuged, and the precipitate was suspended in 390 ml of 0.2 M potassium phosphate buffer, pH 6.5, containing 1 mM **EDTA**, 1 mM 1,10-phenanthroline, 1 mM phenylmethanesulfonyl fluoride, 5 mM phenylthiourea and 1% ethanol. The suspension was stirred for 2 hours,. . .

L5 ANSWER 3 OF 4 USPATFULL

ACCESSION NUMBER: 2000:21400 USPATFULL
TITLE: Penicillin binding protein derivatives and uses thereof
INVENTOR(S): Balganesh, Tanjore Soundararajan, Bangalore, India
Town, Christine Mary, Sodertalje, Sweden
PATENT ASSIGNEE(S): Astra Aktiebolag, Sodertalje, Sweden (non-U.S. corporation)

	NUMBER	DATE	
PATENT INFORMATION:	US 6027906	20000222	
	WO 9616082	19960530	
APPLICATION INFO.:	US 1995-481435	19950710	(8)
	WO 1995-SE761	19950621	
		19950710	PCT 371 date
		19950710	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	SE 1994-4072	19941124

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Allen, Marianne P.
LEGAL REPRESENTATIVE: White & Case LLP
NUMBER OF CLAIMS: 33
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 28 Drawing Figure(s); 14 Drawing Page(s)
LINE COUNT: 3441
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to variants of Penicillin Binding Proteins (PBP), which proteins are involved in bacterial peptidoglycan biosynthesis. Disclosed are also DNA molecules coding for the said PBP variants, as well as vectors and cells harbouring such DNA molecules. The invention is also related to processes for assaying and designing therapeutically useful compounds which have high affinity to PBP, which processes utilize the said PBP variants.

DETD . . . 6 hours of induction at 22.degree. C. was washed twice with buffer A (30 mM Tris-Cl, pH 8.0; 10 mM **EDTA**; 10 .mu.g/ml leupeptin; 10 .mu.g/ml aprotinin; 5 mM DTT) and resuspended in the same buffer. The cell suspension was passed. . .

DETD The purified protein was enzymatically active in the **peptidoglycan** transglycosylase **assay** (Heijenoort et al., 1992) and bound penicillin with an affinity comparable to that of the membrane bound native PBP 1B.

L5 ANSWER 4 OF 4 USPATFULL

ACCESSION NUMBER: 96:116257 USPATFULL
TITLE: Method for assaying activity of prophenoloxidase activating enzyme and application thereof
INVENTOR(S): Ashida, Masaaki, Sapporo, Japan

Kawabata, Tomohisa, Amagasaki, Japan
Hirayasu, Kazunari, Amagasaki, Japan
Tsuchiya, Masakazu, Amagasaki, Japan
PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Osaka, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5585248	19961217
APPLICATION INFO.:	US 1994-343943	19941117 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1993-289513	19931118

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Kight, John
ASSISTANT EXAMINER: Leary, Louise
LEGAL REPRESENTATIVE: Sughrue, Mion, Zinn, Macpeak & Seas
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Figure(s); 6 Drawing Page(s)
LINE COUNT: 1086
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for assaying an activity of a prophenoloxidase activating enzyme (PPAE), comprising assaying at least X-Arg or Y produced upon contact of the PPAE with a peptide chain of the formula

X-Arg-Y

wherein X is an optionally labeled amino acid residue or peptide residue, having an optionally protected .alpha.-amino group or N-terminal, provided that the amino acid residue adjoining Arg is not Gly or Ala, and Y is an organic residue capable of binding to a carboxyl group of Arg by acid amide bonding or ester bonding, or an optionally labeled amino acid residue or peptide residue, having an optionally protected .alpha.-carboxyl group or C-terminal, the peptide chain capable of being hydrolyzed into X-Arg and Y by a PPAE derived from an insect. According to the present invention, PPAE activity can be quantitatively assayed with precision and a highly precise method for determining .beta.-1,3-glucan and/or peptidoglycan, wherein said PPAE activity is used as an index, can be provided. In addition, the present invention enables detection of fungi and bacteria without multiplication by culture, which makes early diagnosis of microbial infections possible. The present invention is applicable to a wide range of use such as tests for microbial contamination of water and food, safety tests of therapeutic agents such as antibiotics and injectable preparations, etc.

SUMM . . . for assaying the activity of prophenoloxidase activating enzyme (hereinafter referred to as PPAE) and a method for assaying .beta.-1,3-glucan and **peptidoglycan** by utilizing said **assay** method.

SUMM The assay method based on the cascade of insects includes a conventional method wherein .beta.-1,3-glucan and **peptidoglycan** are **detected** by measuring PO activity developed upon conversion of proPO to PO by PPAE. This method is encountered with the problems.

SUMM Another object of the present invention is to provide a method for assaying .beta.-1,3-glucan and **peptidoglycan** by utilizing said **assay** method for PPAE activity.

DRWD FIGS. 6A and 6B is a liquid chromatogram showing the **detection** of **peptidoglycan** by the use of a synthetic peptide as a substrate, wherein 1 is the peak of the reaction product

(2-Pyr-Ala-Leu-Asn-Arg-OH). . .

DETD Assay (3) of the present invention specifically detects and quantitatively determines .beta.-1,3-glucan and Assay (4) of the present invention specifically **detects** and quantitatively determines **peptidoglycan**.

DETD **Assay** (4) for **peptidoglycan** is the aforementioned **Assay** (2) wherein used is the proPO activating system which has undergone removal of a component that specifically reacts with .beta.-1,3-glucan.. . .

DETD **Assay** of **peptidoglycan** using body fluid (SLP) of sericulture silkworm larvae

DETD . . . were mixed and the mixture was heated at 30.degree. C. for 10 minutes. Thereto were sequentially added and mixed 0.5M **EDTA** (5 .mu.l), 1M Tris-HCl buffer (5 .mu.l, pH 8.5) and a synthetic peptide solution (10 .mu.l) prepared in Example 1. . . cleaved fraction of the synthetic peptide emerged at retention time 4.36 min only when peptidoglycan was added (FIG. 6-A), enabling **assay** of **peptidoglycan** using the synthetic peptide. The SLP solution used was prepared by the method described in Reference Example 3.

L9 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:753373 CAPLUS
DOCUMENT NUMBER: 132:1807
TITLE: A scintillation proximity assay for the **detection** of **peptidoglycan** synthesis
INVENTOR(S): Desousa, Sunita; Prahlad, Dwarakanath
PATENT ASSIGNEE(S): Astra Aktiebolag, Swed.
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9960155	A1	19991125	WO 1999-SE749	19990504
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9944029	A1	19991206	AU 1999-44029	19990504
PRIORITY APPLN. INFO.:			IN 1998-MA1019	19980515
			SE 1998-2210	19980622
			WO 1999-SE749	19990504

AB The invention provides a scintillation proximity **assay** for **detecting peptidoglycan** synthesis. The assay is esp. suitable for high throughput screening of compds. affecting peptidoglycan synthesis.

REFERENCE COUNT: 2
REFERENCE(S):
(1) Amersham International PLC; WO 9426413 A1 1994 CAPLUS
(2) Cook, N; Drug discovery today 1996, V1(7), P287 CAPLUS

TI A scintillation proximity assay for the **detection** of **peptidoglycan** synthesis

AB The invention provides a scintillation proximity **assay** for **detecting peptidoglycan** synthesis. The assay is esp. suitable for high throughput screening of compds. affecting peptidoglycan synthesis.

ST scintillation proximity **assay detection** **peptidoglycan** synthesis

IT Chelating agents
(Divalent metal ion; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Radiochemical analysis
(Scintillation proximity assay; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Bacteria (Eubacteria)
Cell membrane
Drug screening
Escherichia coli
Fluorescent substances

Synthesis
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT **Peptidoglycans**
RL: BPN (Biosynthetic preparation); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Transport proteins
RL: CAT (Catalyst use); USES (Uses)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Agglutinins and **Lectins**
RL: NUU (Nonbiological use, unclassified); USES (Uses)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Enzymes, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antagonists; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Cations
(divalent; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Wheat
(germ, agglutinin; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT Peptides, reactions
RL: RCT (Reactant)
(pentapeptides, UDP-N-acetylmuramyl; a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT 9033-07-2, Transglycosylase 9047-61-4, Transferase 9059-29-4, Transpeptidase 68858-66-2, Pyrophosphorylase
RL: CAT (Catalyst use); USES (Uses)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT 60-00-4, Edta, uses
RL: NUU (Nonbiological use, unclassified); USES (Uses)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)

IT 528-04-1D, radiolabeled 25126-51-6, Undecaprenyl phosphate 251294-78-7
RL: RCT (Reactant)
(a scintillation proximity **assay** for **detection** of **peptidoglycan** synthesis)